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FIRST AID IN ILLNESS

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FOR

TROPICAL SCHOOLS, HOMES AND AID POSTS

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by

DR. K. W. TODD

SEVENTH EDITION

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LONGMANS

FIRST AID IN ILLNESS

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If our talent is practical service,
let us mind our service;
the teacher must mind his teaching,
. . . the sick visitor must be cheerful.

Let your love be a real thing.

—The Apostle Paul's letter to the Romans,
chapter 12, verses 7 to 9

FIRST AID IN ILLNESS

FOR

TROPICAL SCHOOLS, HOMES
AND AID POSTS

BY

K. W. TODD, L.R.C.P., M.R.C.S.

Home Economics Dept.
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DOUGLAS BENZIES, M.A.

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FOREWORD

By D. Benzies, late President of Achimota Social Service Society

IN village life, throughout the ages, the most important person has been the "medicine-man." He has received from the people trust and honour, and this has incited many to follow in his trade. The practice of medicine in a village is still the biggest step to power. It is a big temptation to the ambitious.

The author of this book did not intend it for those who would use it to win authority amongst their people. Rather he hoped that those who used it would have the spirit of the "Great Healer" who refused to be thought a worker of magic. "See that no man know it."

Besides the medicine-man, there have been only two other main agencies of healing: the European-trained doctor and the quack medicines which are so widely advertised as the healers of all ills. In these days, however, another agency more powerful than these is entering, and this book, we hope, will be one of its heralds. A generation of people trained in habits of cleanliness and in the treatment of the illnesses dealt with here would, in a few years, make the whole nation healthier. In the treatment of these illnesses, we have the results of Dr. Todd's intimate experience of tropical villages.

It is made clear in this book that prevention and cure depend not only on medicine, but equally on CAREFUL ATTENTION AND SUITABLE FOOD. The instruc-

tions are so practical and eminently simple that they can be followed without any difficulty. I know that the book will be of real value to our Social Service work at Achimota, and I hope that it will prove of equal worth to teachers and parents elsewhere.

AUTHOR'S PREFACE TO LATER EDITIONS

Work with Indian, Chinese, Malay, Siamese, Javanese, Japanese and other dressers during World War II makes me glad to be able to help them by bringing this book up to date.

Many of the treatments invented in the last few years are very good; but at present most of them can only be used by doctors. It is therefore more important than ever to obey the instructions in this book and take patients to the doctor.

In the seventh edition, mention is made of some of these new treatments which may be entrusted by the doctor to aid-post workers.

KWATO, PAPUA, 1951.

CONTENTS

		PAGE
	FOREWORD	5
	AUTHOR'S PREFACE TO LATER EDITIONS	6
	INTRODUCTION	9
1.	WOUNDS, SORES AND ULCERS	10
2.	BURNS AND SCALDS	14
3.	BRUISES AND SPRAINS	17
4.	BOILS AND ABSCESSES	19
5.	INFLAMED WOUNDS	20
6.	POISONED WOUNDS	22
7.	CHRONIC SORES	27
8.	SKIN DISEASES	28
9.	EPIDEMICS	32
10.	EYE DISEASES	34
11.	EAR-ACHE	36
12.	NOSE-BLEEDING	38
13.	COLDS AND INFLUENZA	39
14.	HEADACHE	45
15.	DISEASES OF THE BOWELS	45

PAGE

16. MALARIA 48
17. OTHER ILLNESSES 49
18. CHILDREN'S LITTLE TROUBLES . . 51
19. LONG-STANDING ILLNESSES . . . 52
20. HOW TO USE THIS BOOK . . . 53
21. WHAT IS A GOOD DISPENSARY? . . 54
22. HOW TO START A DISPENSARY . . 54
INDEX 59

PH253

INTRODUCTION

FATHERS and mothers, school-teachers and others who can help people to be healthy are taught HYGIENE. This means the way to prevent disease from attacking people when they are well. They ought also to know how to help their children or friends when they are injured or ill.

FIRST AID FOR THE INJURED means what to do to prevent injuries from getting worse. Some of these injuries are cured by the use of first aid methods; others need more treatment than the first aid man can give; but, because they may get worse while they are on the way to the doctor, they must have first aid before they go. For instance, if a man breaks his arm and tries to walk, the broken bone may tear his muscles or even pierce his skin; so he must have splints and a sling before he goes to the doctor.

It is much the same in using medicines for illnesses. Some sick people will get better without any more help than the rules of this little book; many need the doctor's care and medicines, but cannot go to him at once because the journey would make them worse. A child with convulsions, for instance, often reaches hospital too weak to be cured, or even dies on the way. The first aid for such an illness must be applied till the bad stage is over. Then the doctor will find out the cause and treat the disease.

These rules are therefore not a book of astonishing medical cures, but only FIRST AID IN ILLNESS.

1

WOUNDS, SORES AND ULCERS

When anything cuts or tears the skin, germs may get into the body; if this happens, the wound becomes an ulcer or sore. It will not happen if the wound is treated with a medicine to kill germs and is then covered up so that no more dirt can enter.

Treatment of Fresh Wounds. Soak a small piece of wool in acriflavine solution, and squeeze this in the wound to clean it right to the bottom.

Soak a piece of thin cloth a little larger than the wound in the same acriflavine solution; put it on the wound, cover it with wool and bandage.

If there has been much bleeding, bandage very tightly[1] and it will nearly always stop bleeding.

When this dressing needs changing, after two or three days, treat the wound with permanganate and boriodoform or zinc ointment as described for sores.

Dressing of Ulcers: How to mix Permanganate. Permanganate solution must be made each day before starting to treat sores:

Dip the permanganate scoop (see p. 56) in the crystals, and put into a small bowl as many crystals as the scoop will hold.

Take a clean beer bottle and fill it with hot water.

[1] If the tight bandage alone does not stop the bleeding, press on the outside of it with your thumbs so as to squeeze the wound. If this does not stop the bleeding in a quarter of an hour, you must resort to methods taught in *First Aid to the Injured*. See also p. 23.

Pour this over the crystals; such a bottle contains one pint, and when it is emptied over the correct quantity of crystals it forms a nearly black solution.

How to wash off Dressings and Pus. Take a small piece of wool, soak it in the permanganate solution and squeeze it above the dressing so as to wet it; do this several times; do not put the wool on the dressing or on the sore at first, because it must not go back in the solution when any germs from the sore are sticking to it.

Pull off the dressing; if it sticks on and causes pain, wet it by dripping permanganate solution on to the sore.

Squeeze the wool soaked in permanganate on to the wound to remove the pus. The wool must then be thrown away in a special tin for soiled dressings; afterwards these dressings must be burnt.

Repeat the washing of the wound with a fresh piece of wool. Clean the skin around the sore in the same way, but do not put the wool you use for that into the wound at all. It will be dirty, and *all dirt contains germs*.

If you have not put any germs into the permanganate, the same bowl of solution can be used for several cases. Throw it away when you finish each day's dispensary work, and make some new solution next time.

Sores with Pus: No Ointment. An ulcer in which pus is formed must not be treated with ointments. The pus must be allowed to soak into the dressing; an ointment would prevent this. Instead, a healing powder should be used.

Dip a swab in some boriodoform. Hold this over the ulcer and tap it so that the powder falls on to the ulcer and covers it. Boric powder will do for simple sores or sulphonamide for bad ones.

Put on the sore: (1) a piece of thin cloth or gauze; (2) a piece of wool or wadding; (3) the bandage. This is the ideal dressing: the gauze prevents the wool from sticking in the wound, and the wool soaks up the pus.

Deep Sores. If the sore is deep, take a small piece of wool in the forceps, dip it in permanganate solution, and try to clean the bottom of the wound. Do not pick dead matter out with the forceps if it cannot be made loose with the wool in this way.

Put into the sore a thick layer of boriodoform, filling the deep parts of the ulcer.

Dress as before with gauze, wool and bandage.

Healing Sores: Zinc Ointment. Look carefully at every sore each time it is dressed. When it has not formed any pus, but is red and dry, you can see new skin forming at the edges. It must now have no more iodoform, for this is too strong to allow skin to form. As there is probably little or no pus forming, ointment may be used. Zinc ointment helps the skin to grow.

Spread some zinc ointment on a piece of cloth, cut a piece just larger than the sore, and apply the ointment to the wound.

Bandage it on without any wool. Leave it for two or three days.

Send Bad Ulcers to the Doctor. "Tropical ulcer" is a very bad kind of sore which grows very quickly

and spreads deeply and widely in the flesh. Wherever it spreads, skin and flesh are killed. It is known by its very bad smell.

Children and old people sometimes die of these ulcers; so tropical ulcers should be sent to the doctor. If the patient cannot go, burn the dead flesh with the strongest possible permanganate solution on a swab and apply a thick layer of boriodoform or a little sulphonamide daily; this will cause many to heal.

Inflamed Wounds: Poisoned Wounds. These and some other sores are to be found in this book after the pages on burns and on inflammation.

Summary of Ulcers.

Fresh wounds: wet acriflavine dressing.

Daily treatment of sores: wash with permanganate solution.

Dress ulcers which form pus with boriodoform.

Dress dry ulcers which form no pus with spread zinc ointment.

Send dangerous stinking ulcers to the doctor.

2

BURNS AND SCALDS

A burn is an injury caused by fire or by anything hot and dry, such as a pressing iron. A scald is caused by hot water or oil injuring the skin. They are dangerous for two reasons:

1. The large areas injured may let germs into the deep layers of the skin and so dangerous ulcers may form.

2. The great pain makes the patient very weak. He may even faint. Weakness or fainting due to pain is known as SHOCK.

What to do with Blisters. Burns and scalds cause blisters; these are raised bags of skin containing serum; inside them are sores. If the skin of the blister does not break, leave it; it covers up the sore and prevents germs from falling on it.

The blisters often break, so that the little sore can be seen underneath; the skin should then be torn away with forceps. Otherwise germs are hidden under the loose skin and eat their way into the sore.

Acriflavine and Paraffin for Burns. Treatment of small burns and scalds: Pour some acriflavine solution into a small bowl or saucer.

Add an equal quantity of hot water.

Soak some wool in this and paint it on the burn, both on the sores and on the blisters.

Now pour some liquid paraffin into a saucer, soak

some thin cloth or gauze in it and apply it to the wound.

Put wool over it and bandage it on.

Repeat this oily dressing every day for three days; the oil prevents it from sticking to the sores.

On the fourth day, look carefully at the sore:

1. If there is pus in it, treat daily with permanganate and boriodoform as for other moist sores.

2. If not, and it is rather showing signs of healing, put on zinc ointment; change the dressing alternate days.

Fainting and Shock. Shock frequently follows large burns in children, and they may seem to be dead. Fainting is caused by blood being unable to flow to the brain.

Treatment of ordinary faints not caused by pain:

Keep the patient lying down, with plenty of fresh air: do not let people stand near him.

Put the open bottle of ammoniated camphor liniment near his nose. The smell will make him open his eyes or move his head, which will reassure his friends; but they should not be allowed to make him get up until he feels strong enough to do so.

Severe Shock from Burns and Wounds. When a patient who has been burnt or scalded is unconscious and is cold to the touch, he must be treated as follows:

Tie up the burn quickly with any piece of clean cloth you can find.

Wrap the patient in a blanket; put another one in the sun or by the fire to get warm; put some bricks by the fire too.

Lay the patient on his back on a bed without a pillow; his head must not be raised, because he needs more blood to flow to his brain.

When the blanket and hot stones are ready, wrap him again and put the hot stones on the blanket beside him; the stones must not touch him, as he is unconscious and cannot tell you whether they are too hot.

Stay with him. Tell his friends not to wake him up if he stirs and then goes to sleep. Sleep is the best thing for him. If he is breathing, nothing should be done to wake him; if he seems to stop breathing, the ammonia bottle may be held near his nose.

Make some hot tea and let him drink some if he is awake, but do not wake him up to drink it.

People with wounds or burns which cause them to faint should, of course, be sent to the doctor as soon as they are strong enough to go. So should any bad burns.

3

BRUISES AND SPRAINS

Bruises made of Blood. When any part of the body is hurt by knocking it against something, a lump forms; it is called a bruise, and is made of blood; this blood escapes from capillaries which are crushed when the part is knocked. The blood remains under the skin, as the skin is not usually broken.

Sprains made of "Water." A *sprain* is a swelling of a joint which has been twisted, fallen upon or overworked. The swelling consists of the watery part of the blood.

It is clear that both bruises and sprains come from the blood; they happen as a result of extra blood coming to the part, and too much of it staying there. So there are two things to do at once:

What to do at once. Whenever you knock or hurt yourself in such a way that you fear a bruise or a sprain will come, rub the place as hard as you can. This helps the extra blood to pass and not stop.

In addition to this, something must be done to prevent the extra blood from coming: any bruise or joint which has started to swell after a game, after a fall, or after any other injury, must be made as cold as possible by means of a cold bath. This will stop it from swelling so quickly.

Cold Bathing. Put the part in running water, in a stream or under a tap, for about half an hour.

Lay the patient on his back on a bed without a pillow; his head must not be raised, because he needs more blood to flow to his brain.

When the blanket and hot stones are ready, wrap him again and put the hot stones on the blanket beside him; the stones must not touch him, as he is unconscious and cannot tell you whether they are too hot.

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Cold Bathing. Put the part in running water, in a stream or under a tap, for about half an hour.

If there is no running water, use a basin of cold water and change the water every five or ten minutes for an hour.

If the sprained joint is a shoulder or hip, bathe it with cold water and a sponge.

When the joint feels very cold, dry the skin and rub it gently but firmly for a few minutes. This rubbing may be done with a little boric powder or some liniment; but rubbing without any medicine is equally good. This is called massage.

Put some wool round the limb and bandage tightly.

Second-day Sprains: Hot Bathing. Bruises and sprains more than a day old are not to be treated with cold water. The reason is that they are swellings which have to be taken away, and the only thing which can take swellings away from under the skin is the patient's own blood. Treatment can help more blood to come to the part and take the swellings away more quickly. To bring more blood to the part, heat must be applied. This is done as follows:

Put a tin of water on the fire till it is as hot as is possible to bear.

Take it off the fire and bathe the limb in it.

Put a kettle of water on the fire and add hot water to the bath from time to time, so as to keep it as hot as the patient can bear. Continue this for an hour, and repeat the bath twice the same day.

After the bath, re-apply the bandage.

It is better for people with sprained ankles or knees to lie down or sit in a chair; they will not improve quickly if they walk about. If the sprain is in a part of the arm, a sling should be used.

4

BOILS AND ABSCESSES

Germs and Pus: Hot Baths. A boil is a swelling just under the skin, composed largely of pus; an abscess is a large or deep boil. In these swellings the body is fighting millions of germs. The battle is fought by millions of white corpuscles from the blood. The blood comes to the place in such large amounts that the swelling is red and distinctly hot. It happens that germs cannot fight so well where it is hot, and that white corpuscles fight better. Millions of both are killed in the battle; pus consists almost entirely of dead white corpuscles and germs.

Give all boils and abscesses very hot baths, as described for sprains, several times a day.

After the bath, do not massage, but apply a fomentation.

How to apply fomentations. First boil some water.

Cut a piece of lint, or other thick cloth, a good deal larger than the abscess to be treated.

Roll the lint in a strong piece of cloth or a small towel. Put this in a basin or large mug in such a way that the part containing the lint is in the bottom of the mug but the ends of the towel are hanging over the edge.

Now pour boiling water over it; the ends of the towel will remain dry, while the middle, with the lint, will be soaked.

Take the ends, one in each hand, and wring the

cloth as dry as possible. A fomentation is very painful if it is put on wet.

Tell the patient to take his limb out of the hot bath. Unroll the cloth, put the hot lint on the abscess, cover it quickly with some wool or wadding to keep the heat, and bandage it on.

NOTE: A fomentation will keep hot for a quarter of an hour if it is well done. But a hot bath can be kept hot for an hour or more. So a fomentation is not so good as a hot bath. All cases needing fomentations must have hot bathing first.

Purgatives for patients with pus. Ask patients with boils or inflamed wounds whether they go to latrine two or three times a day. If they do not do so, give them Epsom salts; for doses, see pages 46 and 57.

5

INFLAMED WOUNDS

Sores with painful and swollen edges are *inflamed*; this means that the battle against germs is going on, not only in the wound itself, but also under the skin near the wound. The edges of inflamed wounds are soft, moist and irregular. An abscess which has opened and formed a sore is one kind of inflamed wound.

Where you cannot put Drugs apply Heat. Doctors

now have medicines (see page 44) which help the body to fight a battle under the skin. Another way to help is to encourage the blood in its attack on the germs by applying heat. Heat will also hinder the germs.

Hot Baths in Permanganate. Put on the fire a tin of water large enough to bathe the limb and the sore.

When the water is hot, put in as much permanganate as will cover a threepenny piece.

Take the tin off the fire and put a kettle of water on.

Bathe the limb in this weak solution of permanganate; keep on adding boiling water to make the bath as hot as the patient can bear.

After an hour prepare and apply a fomentation.

Inflamed sores treated in this way twice a day should soon improve and begin to look like ordinary sores; they can then be treated with permanganate solution and boriodoform.

Inflamed wounds often lead to what is called blood-poisoning.

6

POISONED WOUNDS

(a) **Poisoning by Germs.** If germs spread from a sore into the blood, the sore becomes as dangerous as a snake-bite, and is therefore called a poisoned wound. The battle against these germs is being fought, not only in and around the wound, but also in the glands of elbow, armpit or groin, and even in the blood itself. The patient's temperature rises; if it is more than 100°, simply put a hot fomentation on the wound and send the patient to a doctor. Such blood-poisoning is a dangerous disease.

If he cannot go to a doctor, or if the doctor does not keep him in hospital, carry out the following treatment, missing nothing:

Make the patient lie on his bed, and raise the wounded limb on a box or stool.

Prepare a hot weak permanganate bath as above and bathe the limb for two hours. Bathe the swollen glands in the groin or armpit at the same time.

After two hours' bathing put a hot fomentation on the wound and another on the glands.

Then lay the patient down again, with the limb raised as before.

Go again four hours later and repeat the hot bathing and fomentation.

If the patient has not slept, give him two tablets of aspirin at this visit.

Let him have plenty to drink and a little food if

he wants it. If he has no desire for food, give him some milk to drink.

Give him a bottle for urine and a pot for latrine, as he must not walk at all while his temperature is up.

It may be necessary to carry on with these baths every few hours for several days; but the treatment will almost always be successful. Do not forget, however, that some cases will die; it is a very dangerous disease, so you must send them to the doctor if possible. Modern medicines and injections are saving nearly all cases (see page 44).

(b) Lock-jaw. Some wounds give rise to another disease caused by germs. This is lock-jaw. You cannot tell if a wound is going to cause lock-jaw. But if anyone has a wound in which there may possibly be some soil or road dust, especially in places where cattle or horses have been or their manure has been used, there is danger of lock-jaw developing. The patient must have an injection from the doctor, and the trouble can be avoided. This injection saves many lives. Treating the trouble after it has started is much less use.

(c) Dog-bites. Dog-bites are dangerous if the dog is mad, or even if it is only beginning to go mad. If a dog has bitten someone, do not kill it. Tie it up and give it food and water. If it becomes ill in a few days, send the patient to the doctor, even though the wounds may seem very small. Poisoning by a mad dog is fatal unless injections are given before any sign of trouble shows itself in the wounded person. If, after a week, the dog is not ill, it can be

killed or allowed to go free, and there is no need for the patient to have injections.

(d) Poisoning by Snakes and Scorpions. The first aid for snake and scorpion bites is well known:

1. Tie the limb very tightly at once near the bite, between the bite and the body.

2. Soak a piece of wool in ammoniated camphor liniment and squeeze it on to the bite.

These two treatments are of little use if they are not done at once, say within five or ten minutes of the accident.

The following treatment with permanganate crystals should be done if the patient is not seen till a quarter of an hour has passed:

Clean the skin round the bite with iodine.

Clean the point of a sharp knife in the same way.

Hold the bitten hand or foot firmly in your left hand and cut the bite open a quarter of an inch in four directions; you must cut fairly deep, but quickly.

Take a pinch of permanganate crystals and rub them into these cuts.

Apply a hot fomentation.

Prepare hot weak permanganate solution to bathe the limb as for inflamed and poisoned wounds, and give a long and very hot bath as soon as it is ready.

Remove the tight band from the limb as soon as it is in the bath.

(e) Snake Poison and Germs together. Germs spread very quickly in the flesh which has been poisoned by snake-bite. Such bites are then very

dangerous indeed. Nearly all deaths from snake-bite in Africa are due, not to the poison of the snake itself, but to blood-poisoning from germs. It is far more important, therefore, to keep germs out than to put medicines in. Do not cut open a bite half an hour old.

Treat every case of snake and scorpion bite as a poisoned wound:

Bathe the limb for some hours in hot permanganate as above; this relieves the pain and may prevent the limb from swelling.

After the first bath, bathe it for an hour every four hours for a day and a night.

If it shows any signs of swelling, continue frequent hot baths. At this stage, however, the patient should be sent to hospital, because he is no longer in need of first aid. (See also page 44.)

(f) Guinea Worm and Germ Poison. Guinea worms are very irritating, but they are not poisonous. They come out without causing any harm if they are allowed to do so. No medicine or injection is certain to kill the worms every time. The following method hastens their death, aids their removal and takes away all danger of blood-poisoning:

Soak some wool in permanganate solution as used for dressings. Bind this as a wet dressing over the point where the worm is irritating the skin.

Repeat this daily or two or three times a day. Do not pull on the worm at all while it is alive.

When the guinea worm dies, it changes; it looks white and firm like string, instead of red and soft. It can now be very slowly pulled out. The only danger is that germs may get in and spread into the body through the track where the dead worm is lying. If the wound is scratched, this may happen; worse still, if the worm is stretched and broken, the broken half slips back far into the wound and the germs from the sore are able to spread. Therefore, when the worm is dead:

Take two matches and some thin string or cotton.

Tie the end of the worm between the matches.

Pull gently to get about half an inch of the worm out. Roll this on the matches.

Apply a wet acriflavine dressing on the sore and bandage the matches and the worm on to it. Repeat this daily, pulling very gently.

If the place where the worm is lying under the skin becomes swollen and painful, give hot permanganate baths as if it was a bad poisoned wound.

Send guinea worm cases to the doctor if they have fever with it, that is, if their temperature rises over 100°.

7

CHRONIC SORES

Some sores take months or even years to heal; they are therefore described as chronic. Most of the patients who have such chronic ulcers are people who have had yaws, syphilis or leprosy. They need to have a course of injections from a doctor before they can heal at all quickly. Write down their names; the doctor must see them when he comes even if their wounds have healed.

Here are one or two extra rules to help in the treatment of these chronic cases.

Stop using iodoform or boriodoform. It does not allow skin to form.

Apply fomentations, twice a day if possible, even if the wound does not look inflamed.

After a week of this, use zinc ointment instead for a week; once a day is enough.

Acriflavine dressings often help skin to form.

Recommence fomentations for a week; then zinc ointment for a week; and so on.

If the ulcer is on the leg, try to make the patient *rest*. Tell him to sleep from eight o'clock at night till seven in the morning, and to sit in a chair during the day. If he can avoid walking about for a month or six weeks while you treat with fomentations and zinc ointment as above, it is probable that his ulcer will begin to heal, even if it has been present for years.

8

SKIN DISEASES

(a) Scabies

This is also called "the itch" and is well known. It is an infectious disease, but so easy to cure that no school should have it. If you are in doubt whether a child has itch or not, look between the fingers; on the web of the fingers you will nearly always find signs of scabies if this disease is present in any part of the body. It is caused by a little creature called the itch-mite, which lives under the skin.

Sulphur for Itch. Rub sulphur ointment into the itching parts. This ointment is rough, as you can tell if you rub some between your thumb and finger. It has to rub off part of the skin to reach and kill the mite. Use it like sand-paper; rub very hard indeed. Some doctors say: "Rub it in with a brick until the blood comes."

All-over Scabies. Sometimes scabies attacks not only the skin between the fingers, but also that of the elbow and even the legs and the body. It forms little spots full of water. In such cases new spots may form in spite of daily rubbing with sulphur ointment, and the following treatment must be done:

Bathe the child in hot water to which a handful of washing soda has been added.

After the bath, rub sulphur ointment into each part of the body where there are spots.

Repeat this daily or twice a day for several days; the spots will all burst after one or two baths, but treatment must be continued longer.

(b) Ringworm and Mycosis

There is a kind of skin disease which many people have either on their faces and necks or in their groins and on the private parts. It itches a little; it cannot be felt with the finger, but is seen as a pale patch; on white skins it is pink or brown.

It is called *mycosis*, and it is a mild kind of ringworm. In the groin it is often called dhobie's or washman's itch.

It is good to try and cure the cases in the school. The disease is often regarded as incurable, and if you cure it the children will more readily come to you for more serious troubles.

Treatment. Paint the part with tincture of iodine daily for three days. Examine it after a week, and if necessary repeat this simple treatment. If the ringworm is still present after a further week, use chrysarobin ointment.

Chrysarobin: Warning. Unfortunately this is very strong and burns some people's skins. If you use it at all, you must always remember this and use it very carefully:

Chrysarobin is very bad for eyes; do not let it be put near the eyes. It also hurts sores.

Chrysarobin stains clothes and—to repeat—sometimes burns the skin.

Therefore: Put on the least possible quantity to cover the ringworm, and rub it in.

As soon as it has been well rubbed in, tell the patient to wash it off with soap and water.

Apply chrysarobin treatment in this way for three days.

On the fourth day, if the skin is not burnt by the chrysarobin, you may put some of the ointment on and leave it on. Do so daily till the mycosis or ringworm is cured. Twenty or even fifty applications may be needed.

If the ointment does irritate the skin, apply chrysarobin ointment daily, but do not leave it on; have it washed off.

Ringworm on the Head. Children who have ringworm and no scabs can be shaved and treated as described above; read over again the cautions about chrysarobin and follow the instructions. (A *scab* is a crust covering a sore.)

When there are scabs on the head, chrysarobin cannot be used; the ointment is too strong to put on sores. The sores must first be healed.

Shave the head if possible.

Bathe it daily with hot weak permanganate to soften the scabs and remove them.

Apply a very little zinc ointment to the sores.

When the sores are healed, if any ringworm remains, treat it with chrysarobin as above.

(c) Jiggers

A jigger is a small insect which buries itself deep in the skin. The young jigger lives in dry sand or dust and therefore usually attacks the skin of the toes.

If you have jiggers in the home or school, it means:

(1) That the floors are not washed. If they are well wetted twice a week, jiggers cannot live on them.

(2) That some children have large jiggers—three or four days old—in their feet. This is disgraceful, because it is easily avoided.

To avoid Jiggers. Wash the floors twice a week.

Hold a hygiene practice twice a week or more, making the children examine one another's feet; in this way the jiggers can be removed while still small, before they are old enough to breed.

To remove Jiggers:

Wet the skin with a little acriflavine or iodine.

Take a safety-pin or a needle which is not too sharp.

Raise the skin around the hole where the jigger entered. This must be done patiently, pressing the skin back in all directions until the hole is large enough to lift the insect out.

Remove the jigger without breaking it.

Apply more acriflavine to prevent a sore from forming.

Illnesses Which Come Out in the Skin

Leprosy, syphilis and yaws are bad diseases which show themselves in the skin; they are well known. Do not be ashamed to ask the old men if you are in doubt. Such diseases must, of course, be dealt with by the doctor. If a patient with leprosy is not kept in hospital, and the doctor advises it, partial isolation as for tuberculosis (p. 41) must be carried out.

Modern treatments for these diseases are so good that it is a great pity when patients delay getting cured. In addition to allowing the disease to last longer and get worse, this delay also causes others to catch it.

9

EPIDEMICS

A sickness which, because it is so easily caught, attacks a number of people of the place all at once is called an epidemic disease. Many of the diseases in this book can be epidemics, especially influenza, small-pox and dysentery. Some diseases, however, almost always attack a number of people: thus plague and cholera come in the form of epidemics.

A rash which appears suddenly in more than one part of the body may be measles, small-pox or chicken-pox. Measles can mostly be distinguished from the others, because it starts with a cold in the nose and eyes; also the measles rash is not composed of separate small spots and does not form sores.

Chicken-pox and Small-pox. It is very difficult to distinguish chicken-pox from small-pox. If either occur, the patient must be treated as follows:

Put him in a house by himself, preferably a farm granary not too far from the village.

Find a relative who has had small-pox and get her to look after him. One who has been recently vaccinated will do.

Give her some very strong permanganate solution —as strong as it can be made—to put on the sore spots.

Take the temperature daily. If you cannot go daily, give the friend the thermometer; after she has seen you do it, she can put it in the patient's mouth;

she will not be able to read it, perhaps, but she must bring it to you without shaking it. When you have read it, be sure to shake it down.

Letter to Doctor about Infectious Disease. It is against the law even for a European doctor to treat cases of small-pox without telling the health authorities. If you have a case of small-pox, or chicken-pox, a bad case of measles, you must write to the doctor AT ONCE. The following simple letter is only a sample; it tells him enough to help him to decide what to do, and yet leaves everything to his judgment.

GOVT. SCHOOL,
BABIKRO,
22nd January, 1950.

THE MEDICAL OFFICER,

DEAR SIR,—There is a boy here believed to have small-pox. He has had a rash for two days, most of the spots being on the face and body. He feels ill, and has a temperature of 101·4°.

He is now in a farm granary near the village. The school is remaining open till you come, in case you decide to vaccinate.

Awaiting your instructions,

I remain,
Yours truly,
.................*Headmaster.*

Plague and Cholera. In the countries where these occur, they are so well known that there is no need to describe them. One of the worst things about them is the fear they cause. Often nobody will go near the sufferers. It is stated that no medicine can

save their lives, and this is all too often true. But they do not all die, and a good many will get well, who would otherwise die, if they are simply given water, kept clean, cheered up, and—in the case of cholera—rubbed. Even those who are dying need the same care.

Inoculation. As soon as you have plague or cholera in the village, send your best assistant with a note to the doctor asking him to inoculate him against the disease. Look after the sick until he returns. You will, of course, practise personal hygiene to avoid the disease yourself. When the assistant comes back, get him to do your work for the sick and dying, and go yourself for injection. If it is quite unlikely that the doctor will be able to visit your village, both your helper and you should take as many others with you as will go. You will thus not only set the village a good example, but also be able to continue your work for the sufferers in safety. The doctor may also be able to help with medicines to protect the healthy or even cure some of the sick.

10

EYE DISEASES

All wounded or ill eyes need to be washed out daily or several times a day with boric lotion; this is a solution of boric acid, and there should be some ready in the dispensary. Eyes with pus in them must be examined by the doctor; they must also be

washed out three times a day, and the ointment (penicillin or albucid) supplied by the doctor must be put right in between the lids.

How to wash the Eyes. Stand behind the patient and bend his head back; he should be seated on a box or stool. In the case of a baby, the mother must sit down holding it; the child lies on her knees with its head towards you; you sit and hold its head between your knees. Your hands are thus free, but the head is fixed.

Dip a piece of wool in boric lotion to which an equal quantity of hot water has been added.

Squeeze it so as to drip into the eye, which must be held open with your right hand for a right eye, your left hand for a left eye.

Repeat this washing several times for each eye, without touching the eyes or the pus with the wool.

Now remove any pus that still sticks in the corners of the eye; throw away the wool, as it must not go back in the lotion with germs on it.

Finally, put a drop of liquid paraffin in each eye. This soothes the pain and also prevents the lids from sticking together; if they stick together, the pus cannot escape, but stays on the eye and does harm.

For the same reason, DO NOT BANDAGE INFLAMED EYES. If an eye-shade is needed, use one which allows the eye to open and shut freely.

When to fear Blindness. When the middle, clear part of the eye is hurt or diseased, there is a danger of blindness, and the patient *must* go to a doctor. If the eyes of a small-pox patient have a spot in them, write to the doctor again. Examine every bad eye carefully to see whether this clear part of the eye is

spotted. Eyes with pus in them must go to the doctor too, because the pus nearly always eats into the clear part of the eye.

Blindness. People who are blind or nearly blind should all be taken to the doctor. Some can be cured by a small and painless operation, some others are due to smoking too much or to diseases of the nerves which can be helped by medicines or injections. Some of course are incurable. But only the doctor can decide this.

Trachoma. In many parts of the world large numbers of people have an eye disease which lasts for years. It is called trachoma. It starts in the lids, but spoils the clear part of the eye and makes the patient blind in course of time. It is caught by one child from another, often by the use of cloth and bedding which the bad eye has touched.

Anyone with itching eyes which have lasted for months must go to the doctor to find out whether it is trachoma.

There is a good treament for trachoma. It takes some time and the doctor will usually value help. Even if it is painful, it is very necessary to go on with this treatment. Do not diagnose or treat trachoma without a doctor's orders.

11

EAR-ACHE

The outer ear contains wax to protect the drum; wax is a useful material and should not be washed out except by doctor's orders. But when the wax hardens or swells, it causes ear-ache. Most cases of ear-ache without pus are due to wax. Therefore all children with bad ears should have warm oil put in

when they first report to you; it will soften the wax, ease the pain, and quite often cure the trouble.

Warm Oil for Ears. Put a spoon in boiling water.

Take out and shake it dry.

Put three drops of liquid paraffin in it while it is still hot.

Make the patient bend over to the side.

Try the heat of the spoon against your hand.

Drop the warm oil into the ear.

Put a little wool in the ear afterwards.

Heat the spoon again in the same way and repeat for the other ear if both are aching.

Making Swabs for Ears. If the ear-ache continues and the patient comes for treatment next day, the wax will have been softened by the paraffin and can be removed by careful swabbing.

Take the midrib of a palm leaf: there should be some ready in a box in the dispensary.

Take a very thin piece of cotton-wool.

Wet one side of the wool to make it stick on to the handle better, and roll it very tightly on to it.

Test the swab by pulling on the wool; it must be too tight to be easily removed.

How to Swab the Ear. Push the swab gently into the ear and twist it round.

Pull the swab out and look to see whether there is wax or pus on it.

If there is no pus, drop in warm oil again as above.

If there is pus in the ear, swab it again till no more pus comes, and then put in some boric or sulphona-mide powder.

If, however, the swab causes pain, apply heat; there may be an abscess inside.

Apply heat to the ear as follows:

Either fill a rubber hot-water bottle with hot water; or fill a bag with smooth earth or sand, and heat it by the fire; or wring out a large cloth soaked in very hot water; and place the head on this like a pillow. Change it as it cools.

How to put Powder into the Ear. Take a swab which will go easily into the ear. It must not be tight against the sides of the ear passage.

Dip it in the powder; it will pick up enough.

Put it with the powder in the ear and turn it round.

Repeat this daily so long as there is pus.

Very Bad Ears. If the pain is very bad, and always if the temperature is over 100°, send the patient to the doctor.

Insects in Ear. Warm oil dropped into the ear will make the insect float or crawl out.

12

NOSE-BLEEDING

Do not let children whose noses are bleeding bend down; this increases the bleeding. Make them sit with the head bent back, nose in air. The traditional idea of turning the nose to the wind is a good way of stopping them from bending down.

Most nose-bleeding is from the parts of the inside of the nose near the front; it is the child's finger-nails that cause it. See that they are cut short. A little liquid paraffin in the nostrils also helps to prevent nose-picking.

13

COLDS AND INFLUENZA

We cannot cure Colds. Although colds in the nose are very common, doctors cannot cure them as they can cure malaria and yaws, by medicines or injections. We can, however, make the patient feel better, and also help the body to beat the disease and get well quickly.

Slight Colds. Allow the child to smell the ammoniated camphor liniment; it often clears the nose and relieves the headache. Rub some of the liniment on the chest at night too.

Bad Colds. Give a tablet of aspirin (two for an adult) and a small dose of quinine on the first and second evenings of the cold.

Drop three drops of liquid paraffin into each nostril daily; it makes breathing easier.

Give cough mixture twice a day even before coughing commences.

Put a single crystal of permanganate in a cup of hot water and make the patient gargle; do this three times a day if the throat is sore.

If the patient does not go to latrine, give Epsom salts: a teaspoonful for a child, four or even five for an adult.

"Cold" with Fever: Influenza. If anyone has a cold in the nose and feels ill, take the temperature. A cold with a temperature over 100° must be regarded as influenza. It is true that this disease has sometimes killed many people; but at other times it comes in the form of a very bad cold; in such cases some will die of it if they are not treated as above and made to rest in their houses till they feel well again.

Catarrh: Do not treat. Very few people have catarrh; hundreds think they have it. Do not give medicine to these people; they do not need first aid, and if they want treatment they should go to the doctor.

Coughs. A cough may be the result of a sore throat; if this is the cause, the inside of the throat looks red. Gargling with hot water made slightly pink with permanganate is good. Give cough mixture once or twice a day as well.

Other coughs, with pain in the chest, are eased by rubbing the chest with ammoniated camphor liniment, and giving cough mixture three times a day.

Whooping Cough. When a child coughs until it is out of breath and then makes a crowing noise, that is probably whooping cough. It also makes the child vomit. Whooping cough is infectious; those who have it must not come to school; they must also sleep in a room without other children in it.

Go to the house daily with some cough mixture, and if the child seems ill take the temperature. Many children die of pneumonia after having whooping cough, if they are not looked after.

Old Coughs: BEWARE. Anyone who has a cough for a week or two which does not seem to improve when you give medicine for several days, must go to a doctor. It may be tuberculosis and this can be treated if taken early.

Tuberculosis. If the doctor says it is tuberculosis, but does not keep the patient in hospital, he must sleep and live in a separate room from other people. Children should not be allowed near him. No one must use the plate, mug and spoon which he uses. He must not cough or shout in such a way that other people are in danger from his spittle. When he spits, he should spit on to paper or leaves which should be burned at once.

Some tuberculosis patients infect their whole family. For the sake of the household, the patient must obey these rules; if he does not obey them, others in the household may die.

For his own sake, his best hope is rest and good feeding. Until he has no more fever, he should rest just as if he had pneumonia. He should eat more than a pneumonia patient, however, especially meat, fruit, eggs, cheese and fish.

Cough with Fever: Pneumonia. Pneumonia may follow influenza, measles, small-pox or whooping cough, or come on without any previous illness. It is known by the temperature and the quick, painful

breathing; anyone with a cough and temperature over 100° must be treated as if he had pneumonia.

Pneumonia cases need a doctor's care and special medicines which can cure it in a few hours or days (see page 44). Tell the patient to go to a doctor, and do not even suggest that you can treat him. If he cannot go, or if the hospital is full, go to the house and try to help; you may even cheer the patient up by telling him that you have a number of medicines that will do him good if he obeys orders.

Doctors do not trust to medicines alone to cure pneumonia; they also try to keep the patient strong enough to get well; several medicines help them to do this, but SLEEP, GOOD AIR AND MILK are still more useful.

Pneumonia in Far-away Villages. Give the patient a tablespoonful of quinine solution, and four teaspoonfuls of Epsom salts the first day.

Give cough mixture four times a day.

The Room. Have the patient put in a good room, the lightest and best in the house. He must have clothes or blankets, and not closed windows, to keep him warm.

The Bed. He will breathe much more easily sitting up than lying down, but if you do not arrange his bed so that he can sit up comfortably, he will become weak. Put sloping planks under his mattress and a log under it at the knees. Give him a soft pillow to support his head.

If he cannot sit up in bed, a canvas chair with a foot-rest is better, and he should even sleep in the chair at night.

Latrine. He must not walk to latrine. If he does so until he is too weak to go, he will probably die. If he saves his strength while he still has some, he may get well. It is important to give a bottle or pot for urine and a pot for latrine. Teach his relatives to empty and clean them for him. He must not go to the bathroom either.

Sleep. Ill people should NEVER be kept awake. Sleep is the best medicine for pneumonia. Do all you can to make them comfortable so that they will sleep well. At the evening visit, do as follows:

Sponge the patient with warm water and dry him.

Give him a glass of hot milk or Ovaltine.

Cover his bed with a net if there are mosquitoes.

Give some aspirin (two tablets for an adult) with the evening dose of cough mixture; and leave some more of both for him to take if he does not sleep.

Provide some more milk for him to drink during the night if he wakes; this not only keeps up his strength, but will help him to sleep again.

Milk and Strength. However well the patient saves his strength, he cannot go on for several days without making some new strength, and this he cannot do without food of some kind. He cannot, of course, have rice and meat, but he can make the strength he needs from milk. Give two or three small tins a day, and some rice water, soup, eggs and stale bread if the patient wants them. As he will only have small meals, he must have five or six of these drinking meals a day, and, as above, one at night. In addition, he should have as much water as he wants; so should all cases with fever.

Pneumonia in Children. Send the child with cough and fever to a doctor. It would be wise for the mother to take with her a little of the child's motions so that the doctor can see if there are any worms. Pneumonia is very dangerous if the worms which sometimes cause it are not removed.

If the child has to be treated in the village, follow the same instructions as for adults.

Persevere. Even when the patient seems very weak, keep on saving what strength he has by means of rest, and giving him more by means of milk. He may need a week or even ten days of such care. The most important thing is to stop him from walking about in the early days, even if he thinks he only has a little cough and fever. Some cases get better with one or two days and nights of this careful treatment.

Note: In some areas, village leaders are given some of the tablets which cure a bad kind of headache called meningitis. They are not allowed to keep the patient and try to cure him. They have to give one dose, carry the patient to the doctor or his assistant, and have their supply of the tablets made up. It may be possible for those practising First Aid in Illness to do the same with pneumonia, which is treated with the same tablet. But if the doctor trusts anyone with the medicine, be sure that his orders are obeyed and the patient taken to him.

These tablets may also save life or speed up healing in inflamed wounds, child-bed fever of mothers, and other blood-poisoning by germs. The medicine is one of the sulphonamides, a group of medicines with a large number of different names.

14

HEADACHE

Slight headache may be cured by a smell of ammoniated camphor liniment. A dose of aspirin (one or two tablets) will cure others. Many are due to constipation, and some to malaria, and these must be treated accordingly.

Scholars who have frequent headaches should have their eyes tested by the doctor.

African Sleeping Sickness. Headache for over a week may be due to sleeping sickness. If there has ever been a case of this disease in your district, people who have headache in this way must go to the doctor. So must anyone who has glands in his neck, or who has fever several times in a few weeks. It is very bad indeed to let sleeping sickness develop when these signs have been present, for they should warn you to send the patient in good time to the doctor.

15

DISEASES OF THE BOWELS

Constipation: Depends on Diet. People who do not go to latrine every day, or whose motions are very hard, mostly suffer from this constipation because of the kind of food they eat. They do not eat enough green food: spinach, cassava leaves or taro (coco yam) leaves.

Constipation and Vomiting: Danger. When any one who cannot go to latrine starts to vomit, he must be sent straight to a doctor; if he does not go, he will probably die.

Stomach-ache. May be very dangerous or quite unimportant. Only the doctor can decide, and he often finds it difficult. As it is impossible for every child with a pain in the stomach to go to hospital, this is what must be done:

Give no medicine at first, and no food.

Apply heat: a hot-water bottle, hot sand-bag or hot wet towel.

After four hours, if the patient has slept and the pain is no worse, give a small dose of salts. If the appetite is good, some light food can be given after the bowels open.

But if the pain is still bad after four hours, and sleep impossible, carry the patient to the doctor.

Purgative and Aperients. A *purgative* is a medicine which makes one go to latrine several times. It is the right treatment for slight stomach-ache, whether the patient has constipation or diarrhoea at the time. Epsom salts are good. Four or five large teaspoonfuls will purge an adult.

An *aperient* is a medicine which makes the bowels free so that one goes regularly to latrine but only once or twice a day. Epsom salts can be used as an aperient by taking a small dose daily, say a teaspoonful every morning. Liquid paraffin is also a good aperient; give one tablespoonful every evening for a few days, then only three teaspoonfuls, then two teaspoonfuls for a few days, and finally—if the

patient has by this time begun to eat plenty of green vegetables—one teaspoonful daily will be sufficient.

Haemorrhoids or "piles." Do not believe that anyone has bad piles (haemorrhoids) unless there are little swellings to be seen outside the anus or back passage. You cannot treat piles; many people try several different medicines and ointments before they get better; others need injections or even operation. Send them to the doctor.

Diarrhoea. This is the correct name for a condition when the motions are liquid or "loose" but there is no blood in them. Most cases are due to bad food or dirt irritating the intestine. The treatment of diarrhoea, although the bowels are free, is to give a purgative dose of salts and starve the patient for twelve or even twenty-four hours.

Even in the case of babies, it is necessary to give them a purgative, and to refuse them milk until the motions are the proper colour again. If they cry, water must be given instead of milk for a few hours.

Dysentery. Dysentery means blood and slime in the motions; frequent stools without blood is not dysentery but diarrhoea. Dysentery is very serious, and one must act quickly or the patient may die.

Make the patient rest in his house, giving him all the care described for pneumonia patients.

Give a full teaspoonful of salts every two hours for twenty-four hours.

After that, give the same dose every four hours, till the motions contain excrement instead of blood and slime.

As soon as he can, the patient should go to a doctor.

Dysentery with very high temperature may be the result of malaria, especially in children. Quinine should be given in case this is so, and the child should be taken to the doctor.

The proper tablets (sulphaguanidine) to treat dysentery are not at all dangerous, and the doctor may let you keep some; but he will expect you to report each case to him at the time when you use the medicine. Use it by his directions, but two tablets for a baby or twelve for a grown-up patient will be a good guide.

16

MALARIA

In spite of all our mosquito precautions, malaria is common in many places. It kills a great many babies, makes other children thin and ill, and probably weakens all who have malaria parasites in their blood.

There are two ways of dealing with it. One is to count on the power of the blood to prevent the parasite from causing many or dangerous fevers. If you want a child to develop this power, only give malaria medicine when the child has either a very high fever, so that you are afraid it will die, or frequent fevers which are making it thin. This is still the best way in most places.

The other way of dealing with the malaria parasite is to give medicine regularly and so prevent fevers

from childhood to old age. This should be done if some doctor has promised regular supplies of paludrine. Help such a scheme by encouraging those who start taking it to keep on and on. If people take medicine for a few years and then stop, they will have in their blood neither the medicine nor the special power over malaria. So they may have sharp and even fatal attacks.

Where treatment is difficult to obtain, use quinine for children who are having frequent fevers. Take them to the doctor as soon as you can; but a teaspoonful of quinine solution daily for ten days will do no harm. Grown-up people who, when they were children, had malaria with little treatment usually only need a purgative when they have a fever; if they have a high fever for more than a day, give them a dessertspoonful of quinine solution two, four or even six times a day.

17

OTHER ILLNESSES

Convulsions: Babies' convulsions or fits are dangerous because, if treatment is not given at once, the child may die before it can go to a doctor. Convulsions are usually the result of fever, or of indigestion; they are not natural and necessary as some people think.

While the convulsion is on, put the child in a warm bath; take a sponge and pour cold water over its head while its body is in the bath. The reason is that, whatever disease causes the fit, there is too much blood in the brain.

When the fit is over, take the child's temperature. If it is over 100°, give a teaspoonful of quinine solution. If not, give some Epsom salts. Send the child to a doctor.

Epilepsy. Fits in other people are very difficult to deal with; only the doctor can tell whether they are true epilepsy or not. You cannot do anything for this disease except prevent the patient from injuring himself. He may bite his tongue, so a twisted piece of cloth or the brim of a hat should be put between his teeth. If he is beating his head on the ground, make a cushion for him.

Gonorrhoea. Gonorrhoea is one of the diseases which can only be caught by a man from a woman or by a woman from a man; doctors can now cure it. Never give medicine for it; even the best medicine may leave bad after-effects of gonorrhoea. All these cases must go to the doctor. In cases of **men**, the doctor will want to see them every six months for years to prevent after-effects (stricture), and you should remember to send them to him.

The worst result of gonorrhoea in women is a terrible eye disease in their babies. Babies with a lot of pus in their eyes must go to the doctor. Neglected gonorrhoea is a very common cause of blindness.

Kala-azar. In the East, there is another disease for which you must keep a look out, namely kala-azar. Find out if any doctor has had a case in the district, and if so any long continued weakness with fever may be the beginning of this serious trouble. If the spleen is enlarged, and the temperature does

not go down when you give quinine, send the patient to the doctor; or in any case if the spleen is very large indeed. People with kala-azar die—though very slowly—if they are not treated with injections.

18

CHILDREN'S LITTLE TROUBLES

It must be a principle with a school health worker when dealing with small children not to despise one of their little complaints. If you send them away without medicine for a small pain in the finger one day, they will not come to you when their eyes begin to itch; and of course this may be the beginning of a very bad eye disease. And so on.

Iodine. Many of these cases can be treated with tincture of iodine. It does little good, but no harm. On the outside of the skin, it seems to make little pains better. For wounds, it is not as good as acriflavine, though it may be used if there is nothing else to prevent germs getting in.

Toothache. Bad toothache is very difficult to cure. But children's toothache can be treated with iodine: take a very little on a piece of wool and rub in on the gum near the aching tooth.

Do not forget that teeth which are cleaned every evening very rarely cause any trouble; teach and demonstrate all the methods of hygiene you can, for it is much better to prevent than to cure disease.

19

LONG-STANDING ILLNESSES

The diseases mentioned in this book are those needing first aid treatment. They are mostly diseases which would be worse if they went a day without treatment; many of them must be treated before they set out to take a long journey to the doctor. Others are small troubles which any mother, father or schoolmaster should be able to treat.

Keep a List. But there are other diseases, and very many of them, which are much more difficult to treat and yet much less urgent. If they can go to the doctor, so much the better; but if they do not, make a list of their names so that a doctor on a short visit to the town will be able to see them without fail. This list should contain the names

of those whose feet swell up at times,
of children who become backward at school,
of cases of yaws, leprosy and old cough,
of people who have had ulcers for years, and
of any cases over which you have been in serious doubt, but which did not go to the doctor.

Beri-beri. One disease of rice-eating people is particularly important, and you should not let it pass unnoticed, as it can be so easily cured by the use of better and cheaper rice. This disease, called beri-beri, shows itself by great weakness, sometimes by the limbs being quite useless and sometimes by

swelling—dropsy—of the legs and abdomen. Consult the doctor about the cases you fear may have this bad sickness.

20

HOW TO USE THIS BOOK

This work can only be properly learnt at a hospital or aid-post under skilled teachers; this book will be a reminder for those who have been through such a course.

Some who are using the book will meet with cases, and have to do treatments, about which they have forgotten. You will not see a case of pneumonia for ten years, perhaps, and then three will occur at one time. That is why the instructions are given in great detail, so that they can be followed with the book open, even by those who have not seen much of the work.

Learn to use the index; and refer to the book frequently. Read it through again twice a year, so as to be prepared when unexpected cases come to you for advice. If your copy is several years old, some of the teaching in it will be wrong. This is because doctors are finding better treatments all the time. So read the newest edition; if you cannot buy it, borrow it and correct your old copy.

21

WHAT IS A GOOD DISPENSARY?

The mark of a good dispensary is not the cases which are healed without going to the doctor. It is the number of cases who go to the doctor, but who, had it not been for the dispensary, would not have done so. Doctors in the tropics have little time to go and look for cases; it is only as cases are brought to them that they are able to do their most useful work.

22

HOW TO START A DISPENSARY

When a teacher wants to start doing the work described in this book, he usually thinks out how he can get supplies of all the drugs in it and many more; when he has got them, he thinks he has a dispensary. This is not true. You can have a good little dispensary with only a few drugs; only sixteen are recommended in this book, and you can start with less than that. But there are as many things to be prepared by the teacher himself before he can claim to have the beginnings of a dispensary. There are biscuit tins to be nicely cleaned, if possible painted, and labelled, by himself or his helpers; cloths to be washed, cut into strips and rolled into bandages;

petrol tins to be fitted with handles, and bottles to be labelled.

(a) **Outfit that Anyone can Find.** Box labelled **Bandages.** In this put rolled-up strips of clean cloth, white or coloured. Bandages are one of the most expensive items in the dispensary work if they have to be bought.

Box labelled **Gauze,** to contain pieces of thin white cloth. Real gauze is not very expensive, and can be used if necessary.

Box labelled **Fomentations.** In this put pieces of thick cloth. Boracic lint, which can be bought for this purpose in small packets, is used at hospital for fomentations.

Tin labelled **Spread Zinc Ointment,** together with a home-made wooden knife for spreading it. The ointment should not be put on the wound straight from the pot; it must be spread on to bits of cloth or lint and kept ready for use.

Boxes for wool and wadding (also called wood-wool tissue). Wool costs a good deal but, if carefully used, very little is needed. Wadding is about half the price of wool.

Bottle, empty beer bottle, labelled **One Pint,** to use as a measure for making permanganate.

Bottle labelled **Boiled Water,** which should be renewed any time the kettle is boiling in the dispensary and used for doses of salts, cooling eye-lotion, etc.

Bottle labelled **Boric Lotion.** This is made by mixing two full teaspoonfuls of boric acid with a little water, rubbing out the lumps, and pouring it into the bottle with a pint of hot water. If there is too much

boric acid for the amount of water used, the powder simply sinks to the bottom. Boric lotion costs very little.

Bamboo holder labelled **Swabs.**

Bamboo holder for spare midribs of palm leaves, about 8 inches long, for making swabs.

Scoop for measuring amount of permanganate crystals. This is cut out of wood or tin like a small flat spoon. The spoon part must be the size of the old silver threepenny piece (two-thirds of an inch across).

(b) Things to Buy Locally. Wooden case with hinges, handles and padlock. It need not be big; if you keep all stock drugs elsewhere, a petrol case is big enough to hold the things in daily use.

Bowl for making permanganate.

Deep saucer or small bowl for boric lotion.

Kettle; also charcoal brazier or fireplace for heating it and for burning dressings.

Teaspoons, dessertspoon, and a cup or tumbler for giving medicines. Dessertspoons are ordinary eating spoons.

Pair of scissors. Soap and towels (one for wringing fomentations).

Big tins for hot bathing of limbs, washing of bandages, and for soiled dressings.

(c) First Supply of Medicines. When you have prepared in this way, but not before, ask the doctor or chemist for a small supply of the following:

Permanganate Crystals.

Boric Acid Powder. It can be used instead of boriodoform at first.

Sulphur Ointment.

Zinc Ointment.

Cotton-Wool.

Epsom Salts. The dose is from one to six heaped teaspoonfuls as a purgative, costing under a half-penny a dose.

Mist. alba should not be used; it is expensive, and people drink it too often when you have any.

Instead of *mist. alba,* put twelve level dessert-spoonfuls of salts into a pint bottle of warm water; label it **Salts Solution**; the purgative dose of this is from one dessertspoonful for a child to ten for a big adult.

(d) Further Supplies. Start work with those six things. Each week, fortnight or month, send to the doctor for new supplies of any of them which are nearly finished. At the same time ask him for one or two of the following, until you have some of all the things in this book:

Tincture of Iodine, in a bottle with a glass or rubber stopper.

Chrysarobin Ointment.

Ammoniated Camphor Liniment.

Boriodoform, "1 in 10." If the doctor lets you have iodoform, which costs a lot, do not use it without mixing it with boric acid.

Take one teaspoonful of iodoform and nine of boric acid powder. Mix them well together and label the tin or bottle **Boriodoform.**

Acriflavine, "1 in 500." Ask for a 1-ounce bottle. Then if you can get tablets of one grain of acriflavine you can make more solution as required.

When the 1-ounce bottle is empty, put in one tablet of acriflavine and fill up with water.

Liquid Paraffin.

Cough Mixture, "stimulating"; ask the doctor what dose to give. As a rule, the dose is a teaspoonful for a child, a tablespoonful for an adult.

Quinine Mixture. If you have the solution, you must know its dose, usually a teaspoonful for children and a tablespoonful for adults. Do not ask for tablets of quinine or everyone will want them; they are very expensive.

To make up quinine solution, get a half-ounce packet of quinine hydrochloride and put it into a pint bottle. Fill the bottle *to the cork* with warm water. Give teaspoon and tablespoon doses as above.

(e) **Instruments.** A pair of dressing forceps is useful. A good substitute can be made from bamboo.

Those who have learnt how to use a thermometer should try to get one. Those who have not learnt should try to get a nurse or doctor to teach them; do not use one without having been taught.

(f) **Other Drugs.** Buy some **Aspirin** if you need it. The dose is one or two tablets.

The doctor will provide treatment more willingly for patients who are taken to him than for the dispensary stock. Some drugs, such as sulphonamide powder and sulphaguanidine), may be issued by doctors in this way. He may also ask you to help in the distribution of paludrine.

A collection of different medicines is often the sign of a badly run dispensary. A few drugs and dressings which all the helpers know how to use is the ideal system.

INDEX

Abscess, 19, 20
Acriflavine, 10, 27
  How to prepare, 57
  Use in burns, 14
  Use in sores, 27
Ammoniated camphor liniment, 45, 57
  For the chest, 40
  For a cold, 39
  In fainting, 15
  For headache, 45
  Scorpion-bite, 24
  Shock, 16
  Snake-bite, 24
Aperient (liquid paraffin), 46
Aspirin, 22, 43, 45

Backward children, 52
Bathing eyes, 34, 35
  Cold baths, 17, 18
  Hot baths, 18, 19, 21, 22, 24, 26, 30
Bed, in pneumonia, 42
Beri-beri, 52
Blindness
  Cure by operation, 36
  Due to smoking, 36
  Gonorrhoea, 50
  Small-pox, 35
Blisters, 14
Boils, 19
Boriodoform, 12, 13, 21, 27
  How to make, 57
Bowels, 45, 46, 47
Bruises, 17
Burns, 14, 15, 16

Catarrh, 40
Chicken-pox, 32
Cholera, 33
Chrysarobin, 29, 30
  Warning, 29
Cold bathing, 17, 18
Cold in the eyes, 51
  Sign of measles, 32
Cold in the nose, 39, 40
  Sign of measles, 32
Constipation, 45
Constipation and vomiting
  Danger, 46
Convulsions, 9, 49
Cough, 40, 41, 52
  Whooping cough, 40
Cuts, 10

Destruction of dressings, 11, 56
Diarrhoea, 47
Doctor, 5, 13, 22, 23, 26, 27, 31, 33, 36, 38, 40, 44, 45, 46, 47, 48, 49, 50, 52, 53, 54, 56, 57, 58
Dog-bites, 23
Dressing, 10, 11, 12, 15, 25
  Ideal—gauze, wool and bandage, 12
Dropsy, 53
Dysentery, 32, 47, 48

Ears, 36-38
  Insects in ear, 38
  Paraffin treatment, 36
  Swabbing ears, 36, 37
Epidemics, 31
Epilepsy, 50
Epsom salts, 40, 42, 46, 47, 49, 50, 57
Eyes, 34
  Baby's, 35, 50
  No bandage, 35
  Clear part dangerous, 35
  Gonorrhoea, 50
  Headache due to eyes, 45
  Paraffin treatment, 35
  Trachoma, 36
  Washing, 35

Fainting, 15

Fever
  In blood poisoning, 22
  Dysentery with fever, 48
  Guinea worm, 25, 26
  Headache caused by fever, 45
  Kala-azar, 50
  Sleeping sickness, 45
  Water, 43
  With cough—pneumonia, 41
  Malaria, 48
First aid for the injured, 9, 10
  Snake-bites, 24, 25
Fits, 9, 49, 50
Fomentations, 20
  Bathe before fomenting, 19, 20
  For sores and glands, 20-22
  For chronic ulcers, 27
Food for the sick, 43

Gargle, 39, 40
Gauze, 12, 15, 55
Germs, 10, 11
  Acriflavine kills germs, 10
  Germs in boils, 19
  In the blood, 22
  In burns, 14
  All dirt contains germs, 11
  In glands, 22
  In guinea-worm cases, 25
  Pus caused by germs, 19
  Snake-bite and germs, 24, 25
  Wounds, danger of germs, 10, 20
Glands, inflamed, 22
  Sleeping sickness, 45
Gonorrhoea, 50
  Babies' eyes, 50
Guinea worm, 25

Haemorrhage, 10
Haemorrhoids, 47
Headache, 45
  Sleeping sickness, 45
Heat, 21
  Importance of, 18, 19
  How to apply—baths, 18—22, 24, 25, 28; fomentations, 19
Hot baths, for abscesses, 19
  For sores, 19
  For sprains, 18
Hygiene (not much in this book), 9
  Of teeth, 51

Infectious diseases, 33
  Chicken-pox, 32
  Gonorrhoea, 50
  Leprosy, 27, 31
  Measles, 32
  Scabies, 28
  Small-pox, 32
  Syphilis, 27, 31
  Whooping cough, 40
  Yaws, 27, 31
Inflamed wounds, 20, 44
Influenza, 32, 40
Injections, 23, 27, 36, 51
  For piles, 47
Inoculation, 34
Insect in ear, 38
Iodine, 28, 51, 57
Iodoform, 27, 57
Isolation, 32, 33
Itch, 28, 29

Jiggers, 30, 31
  Acriflavine, 30
  Wash floors to kill jiggers, 31
Joints, sprains, 17

Kala-azar, 50

Latrine. *See* books on hygiene
  In blood-poisoning, 23
  In pneumonia, 43
Leprosy, 27, 31, 52
Letter to doctor about infectious disease, 33
Lint, 19, 55
Lock-jaw, 23
Long-standing illnesses, 52
  Ulcers, 27

Mad dog's bite, 23
Malaria, 48
  Headache in malaria, 45
  May cause dysentery, 48

Massage, 18
Measles, 32
Meningitis, 44
Milk, 23
  In pneumonia, 42, 43, 44
Mite (itch-mite), 28
Mycosis, 29, 30

Nose, 38
  Bleeding from the nose, 38
  Cold in the nose, 32, 39

Ovaltine, 43

Paludrine, 49, 58
Paraffin (liquid vaseline), 57
  Aperient, 46
  For burns, 14
  In ears, 37
  In eyes, 35
  In nose, 39
Permanganate, 56
  Dressings, 26
  Extra strong solution, 12, 32
  Gargle, 40
  Hot baths, 21
  Small-pox, 32
  Snake-bite, 24
Piles, 47
Plague and cholera, 33
  Inoculation, 34
Pneumonia, 41-44
  In children, due to worms, 44
Poisoned wounds, 22
  Germs, 22, 24, 25
  Scorpion, 24
  Snake-bite, 24, 25
Powder
  Boric acid, 55, 56
  Ear, blowing powder in, 38
  Healing powder, 12, 56
  Massage with powder, 18
Purgative, 46, 56
  In bad cold, 40
  In constipation, 46
  In diarrhoea, 47
  In fever, 49
  In pneumonia, 42

Pus, 19
  In boils, 19
Pus
  In ears, 37
  In eyes, 34, 50
  In sores, 11, 12

Quinine, 39, 48, 49, 62
  How to mix, 58

Rash, 32, 33
Rest
  Bad colds and influenza, 40
  To heal chronic ulcers, 27
  For pneumonia, 43
Ringworm, 29, 30
  Of head, with scabs, 30

Scabies, 28
Scabs, 30
Scalds, 14
Scorpion-bite, 24
Shock, 15
Sick-room, 42
Skin diseases, 28-31
Sleep, in pneumonia, 43
Small-pox, 32, 33
Soda baths, in itch, 28
Sores, 11, 12
  Chronic sores, 27
Spleen, enlarged, 50
Splints (*see* books on First Aid to the Injured), 9
Sprains, 17-18
Stomach-ache, 46
Stricture, 50
Sulphaguanidine, 48, 58
Sulphonamide, 13, 37, 44, 58
Swab, 12, 37, 56
  How to make, 37
  For ears, 37
Swollen feet, 52
  Legs, 53
  Abdomen, 53
Syphilis, 27, 31
  Chronic sores, 27

Temperature (use of thermometer), 58
  In blood-poisoning, 22
  Dysentery with fever, 48
  Guinea worm, 26
  Malaria, 48
  Pneumonia, 42
  Small-pox, 33

Thin children, 48
Toothache, 51
Trachoma, 36
Tuberculosis, 41

Ulcer, 11
  Daily dressing, 10, 11
  Healing ulcers, 12
  Summary of ulcers, 13
  Tropical ulcers, 13

Vaccination, 32, 33
Vomiting
  In whooping cough, 40
  With constipation, 46

Wasting, 48
Wax, 36
Whooping cough, 40
Worms, in children's pneumonia, 44
Wounds, recent, 10
  Daily dressing of wounds, 11, 12
  Inflamed sores, 20
  Poisoned wounds, 22

Yaws, 27, 31, 52
  Chronic sores, 27

Zinc ointment, 12, 57
  Burns, 15
  Healing sores, 12, 27
  How to spread, 55

LONGMANS